

## REMARKS

[0001] Applicants would like to thank Examiners Nguyen and Amsbury for the telephone interview held on April 22, 2004. In that interview, the primary prior art reference was discussed in relation to claim 1. Specifically, the language reciting “a single examination of each word” in claim 1 was discussed. The Examiner indicated that this phrase is not clear as it relates to the rest of the claim. An amendment has been made to clarify this aspect. In addition, the terminology of claim 3 was discussed.

[0002] Specifically, the Applicants indicated that the term thread as used in that claim is not limited to the ordinary computer science definition as being a separate computer process. Instead, a thread is broader and includes concurrent operations on multiple segments of the incoming stream of text. The threads may be in a single process or concurrent processes.

[0003] Claims 1-22 remain in the case. The Examiner rejected claims 1-22 under 35 U.S.C. §102(b) in view of U.S. Patent No. 4,815,005 to Oyanagi et. al (hereinafter “Oyanagi”). Applicant respectfully submits that claims 1-22 are patentable in view of the remarks presented herein.

### REJECTION OF CLAIMS 1-22 UNDER 35 U.S.C. §102(b)

[0004] The Examiner rejected claims 1-22 under 35 U.S.C. §102(b) in view of Oyanagi. Applicant respectfully traverses this rejection.

[0005] The Federal Circuit has made clear that “[a]nticipation under 35 U.S.C. §102 requires the disclosure in a single piece of prior art of each and every limitation of a claimed invention.” *Apple Computer, Inc. v. Articulate Systems, Inc.*, 234 F.3d 14, 20, 57 U.S.P.Q.2d

1057, 1061 (Fed.Cir. 2000). Furthermore, the “identical invention must be shown in as complete detail [in the prior art] as is contained in the . . . claim” of the present invention. *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 9 U.S.P.Q.2d 1913, 1920 (Fed.Cir.1989). Applicant respectfully asserts that Oyanagi fails to teach or disclose each element of the claimed invention as required under 35 U.S.C. §102(b).

[0006] Initially, it may be useful to review the invention described in the present application and the disclosures of the prior art. In general, the present application describes a system and method related to receiving an incoming stream of text. The stream of text is organized into words. The stream of text, typically a document, is compared to a semantic network. The claimed invention performs a single examination of each word in the text stream to identify word patterns. This means that a search of the semantic network is conducted once for each word in the text stream. Searching the semantic network with a word only once may be facilitated by how the semantic network is organized. When word patterns are identified, objects corresponding to the word patterns found in the stream of text are referenced.

[0007] In contrast, Oyanagi teaches an improved semantic network that performs high-speed inferential retrieval processing on an artificial intelligence knowledge base system. See Oyanagi Col. 2, lines 40-45. Knowledge data is arranged to form a semantic network. The knowledge data includes an object, an attribute, and a value. Oyanagi accomplishes its improvements by storing one knowledge base in main associative memory and specific knowledge data that strictly includes “is-a” attributes in a sub associative memory. In response to a question, Oyanagi simultaneously searches the main memory for an object identified in the

question and the sub associated memory for an object that has an “is-a” attribute. *See* Oyanagi Col. 5, line 43 - Col. 7, line 3.

[0008] As indicated above, Oyanagi fails to teach or disclose each element of the claimed invention as required under 35 U.S.C. §102(b). Amended Claim 1 recites in pertinent part,

**“such that each word in the incoming stream is searched once in the semantic network.”**

Applicants amended claim 1 to clarify this searching of each word only once aspect. However, Applicants maintain that the original terminology has at least the same scope as the amendment. Applicants respectfully assert that Oyanagi fails to teach or disclose searching the semantic network with *each word* only once.

[0009] Applicant notes that all of the “questions” in Oyanagi follow the same structure. *See* Oyanagi Col. 2, line 4; Col. 5, lines 4, 15, 30, 44; Col. 7 line 2. These are interrogative sentences having one of two structures: “<verb/adverb>-Object-Attribute-Value?” or “<pronoun><verb/adverb>-Object-Attribute?” Oyanagi does not search the semantic network with EACH word of the question. Specifically, the <pronoun> and/or <verb/adverb> is omitted. Consequently, only the Object-Attribute or Object-Attribute-Value is used. This means that Oyanagi must parse the question.

[0010] In contrast, the present invention includes no parsing of the incoming stream of text and yet the semantic network is still searched once for each word in the stream. So, if the present invention were provided with the same question as in Oyanagi even the <pronoun> and/or <verb/adverb>. Given the objects and word patterns in the semantic network of the present invention these <pronoun> and/or <verb/adverb> may find a matching object. Such a search is not possible in Oyanagi. Therefore, because Oyanagi fails to teach or disclose

consulting the semantic network once for each word in the incoming stream, claim 1 is patentably distinct under §102(b).

REGARDING CLAIMS 3, 5-8, 15, and 18-20

[0011] Claim 3 recites dividing the incoming stream into threads. As indicated above, a thread is broader than concurrently operating processes and includes concurrent operations on multiple segments of the incoming stream of text.

[0012] Oyanagi also fails to teach or disclose dividing the incoming stream into a plurality of threads and then consulting the semantic network concurrently with those threads. Instead, Oyanagi teaches searching two knowledge bases concurrently with the two different search criteria. In the main memory, the Object-Attribute or Object-Attribute-Value is used. In the associative memory, the same object is used but an “is-a” attribute is used by default. *See* Oyanagi Col. 5, line 43 - Col. 6, line 46.

[0013] Consequently, if the question in Oyanagi is considered an incoming stream of text, Oyanagi fails to divide the incoming stream into segments of the original whole incoming stream. Instead, Oyanagi selects a predefined word in the question, the object, and builds a separate search criteria in order to search the associative memory. Therefore, under a plain meaning analysis, Oyanagi fails to teach or disclose dividing the incoming stream into a plurality of threads and then consulting the semantic network concurrently with those threads. And Oyanagi also fails to teach or disclose consulting a semantic network for groups of words across adjacent threads. Applicants find no teaching in Oyanagi that words on the boundaries of the threads are searched in the semantic network.

[0014] Claims 5-8 and 17-20 recite various ways the consultation of the semantic network may be performed. Each of these claims relate to how each word of the incoming stream is used to consult the semantic network. As discussed above, Oyanagi fails consult the semantic network with each word of the question. Therefore, Oyanagi also fails to teach or disclose the features of claims 5-8.

[0015] In claim 5, the words are examined in sequential order. In claim 6, the whole stream is tokenized first and then the words are examined in the order they appeared in the incoming stream. In claim 7, a first word is found in the semantic network and then that word along with an adjacent word in the incoming stream is searched in the semantic network. In claim 8, once an initial word pattern in the semantic network is found additional words from the semantic network are added to the word pattern until no additional matches are available.

[0016] Therefore, Applicants assert that claims 5-8 are allowable over Oyanagi.

#### REGARDING CLAIMS 4, 12, AND 16

[0017] Oyanagi fails to teach or disclose consulting a semantic network in a hierarchical order. As explained above, Oyanagi teaches an AI system having a knowledge base of unordered knowledge data. Each record of knowledge data has no defined relationship to any other knowledge data. Otherwise, the knowledge base of Oyanagi would have fixed relationships that could prevent certain inferences from being made.

[0018] Consequently, the knowledge base of Oyanagi is unordered. Therefore, there is no hierarchical order between the knowledge data. So, it is not possible for Oyanagi to teach or disclose consulting in a hierarchical order.

[0019] As explained in the telephone conference, one embodiment of the present invention may include nodes of the semantic network organized such that all single word nodes are one hierarchical level, all double word nodes are a second hierarchical level, and so forth for as many levels as desired. The double word nodes may be linked to the single word nodes that share at least one common word. The embodiment may then start with a first word in the incoming stream find a first matching node. Then, a second word in the incoming stream is added to the first word and the semantic network is searched for nodes linked to the first matching node. If a match is found, that node includes the first word and the second word and is on the second hierarchical level. This process may then be repeated until no more linked nodes are found, after which the method continues and references a known object.

[0020] Claim 12 recites the hierarchical search order in the first element. The order in which words are taken from the incoming stream is specifically claimed as well. See page 22, lines 20. These aspects are recited in claims 4 and 16 and claims 5-8 respectively. Therefore, for the reasons explained above, Applicants respectfully assert that claims 4, 12 and 16 are also allowable over Oyanagi.

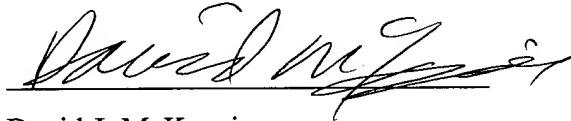
[0021] Therefore, Applicant asserts that claims 1, 3-8, 15, 16, and 18-20 are in condition for prompt allowance. Independent claims 13 recites substantially similar elements to those in independent claims 1 and 12. Claims 2-11, 14-22 depend from the independent claims and are allowable for at least the same reasons over Oyanagi.

AMENDMENTS

[0022] Claims 1, 2, and 12-14 have been amended to clarify the invention. Specifically, claims 1, 12, and 13 are amended to clarify the manner in which the incoming stream is processed in relation to the semantic network. Claims 2 and 14 have been amended to clarify that the semantic network is loadable into a single RAM memory space. No secondary or sub-memory is required to store the semantic network.

[0023] In view of the foregoing, Applicant submits that the application is in condition for immediate allowance. In the event any questions remain, the Examiner is respectfully requested to initiate a telephone conference with the undersigned.

Respectfully submitted,



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